

Hair et al. -- Appln. No.: 09/261,221

said sensing system comprising:

at least one emitter of electromagnetic radiation, and associated structure, arranged at one lateral extreme of said vend space to emit electromagnetic radiation in a broad plane which substantially completely covers the transverse cross section of the vend space below said at least one mechanism but above where said article, upon being vended, comes to rest in said customer-accessible hopper;

at least one electromagnetic radiation detector;

C1
cond
a machine control unit arranged for terminating operation of the respective at least one mechanism; and

control circuitry operatively connecting said at least one detector with said machine control unit, and arranged for providing a signal for causing the machine control unit to complete a vend cycle of said respective at least one mechanism upon said at least one detector sensing that electromagnetic radiation reaching said at least one detector as a result of electromagnetic radiation emission by said at least one emitter has temporarily diminished by a predetermined amount.

3. (Amended) The optical vend-sensing system of claim 1, wherein:

C2
said associated structure comprises a diffuser ranked closely in front of said at least one emitter relative to said at least one radiation detector, for spreading electromagnetic radiation emitted by said at least one emitter into said plane.

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8. ⁷ (Amended) The optical vend-sensing system of claim ⁷~~7b~~, wherein:

C3 said at least one electromagnetic radiation detector is disposed for receiving collected electromagnetic radiation collected by said at least one collector, from a direction which is substantially perpendicular to said plane.

15. ⁷ 14. (Amended) The optical vend-sensing system of claim ⁷~~7b~~, wherein:

C4 said at least one emitter comprises a plurality of coordinately operated emitters arranged in at least one row which extends front-to-rear, depthwise of said vend space; and

said at least one electromagnetic radiation detector is disposed for receiving collected electromagnetic radiation collected by said at least one collector, from a direction which is substantially perpendicular to said plane.

23. (Amended) The optical vend-sensing system of claim 1, wherein:

C5 said control circuitry and said machine control unit are arranged for reducing the effect on sensing of temporary diminishment of electromagnetic radiation reaching said at least one detector, of ambient electromagnetic radiation not emitted by said at least one emitter.

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58. (Twice Amended) An optical vend-sensing system for control of a vending machine which has at least one mechanism arranged for initiating operation upon selection by a customer for vending an article into a vend space through which the article falls into a customer-accessible hopper, the vend space having a defined lateral width and a defined front-to-rear depth,

said sensing system comprising:

an emitter of electromagnetic radiation arranged at one lateral extreme of said vend space to emit electromagnetic radiation in a beam which strikes an electromagnetic radiation detector arranged at one lateral extreme of said vend space, said beam defining a transverse cross sectional plane of the vend space below said at least one mechanism but above where said article, upon being vended, comes to rest in said customer-accessible hopper;

a machine control unit arranged for terminating operation of the respective at least one mechanism; and

control circuitry operatively connecting said at least one detector with said machine control unit, and arranged for providing a signal for causing the machine control unit to complete a vend cycle of said respective at least one mechanism upon said at least one detector sensing that electromagnetic radiation reaching said at least one detector as a result of electromagnetic radiation emission by said at least one emitter has temporarily diminished by a predetermined amount.

59. (Amended) The optical vend-sensing system according to claim 38, wherein said electromagnetic radiation undergoes a plurality of reflections off of each reflecting surface.

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39.
61. (Amended) The optical vend-sensing system according to claim 80, wherein said two reflecting surfaces are differently angled interior portions of an elliptically shaped reflector.

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62. (Amended) An optical sensor, comprising:
two reflecting surfaces in a spaced apart, opposed relation;
an emitter of electromagnetic radiation disposed adjacent to said reflecting surfaces; and
a detector disposed between said reflecting surfaces and spaced apart from said emitter, said detector having an electromagnetic radiation detecting element,
wherein said reflecting surfaces, said emitter, and said detector are constructed and arranged such that electromagnetic radiation emitted from said emitter is reflected off of each reflector at least once and strikes the electromagnetic radiation detecting element, said reflected electromagnetic radiation defining a detection region through which objects to be detected traverse.

CA
48.
75. (Amended) A vending machine, comprising:
an electromechanical dispensing unit having a plurality of product containment regions;
a payment and selection unit that is in communication with said electromechanical dispensing unit, wherein said payment and selection unit sends a signal to said electromechanical dispensing unit to dispense a selected product after a consumer has selected and satisfied payment for said selected product; and
an optical vend-sensing system disposed proximate to said electromechanical dispensing unit, said optical vend-sensing system being in communication with said payment and selection unit and said electromechanical dispensing unit,

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wherein said vend-sensing system comprises:

two reflecting surfaces in a spaced apart, opposed relation;

an emitter of electromagnetic radiation disposed adjacent to said reflecting surfaces; and

cond a detector disposed between said reflecting surfaces and spaced apart from said emitter, said detector having an electromagnetic radiation detecting element,

wherein said reflecting surfaces, said emitter, and said detector are constructed and arranged such that electromagnetic radiation emitted from said emitter is reflected off of each reflector at least once and strikes the electromagnetic radiation detecting element, said reflected electromagnetic radiation defining a detection region through which objects to be detected traverse.

51.
78. (Amended) The vending machine according to claim *48* *75*, wherein said two
C10 reflecting surfaces are differently angled interior portions of an elliptically shaped reflector.

Kindly enter the following new claims:

7.7p. (New) The optical vend-sensing system according to claim 1, further comprising:

C11 a collector body including at least one collector arranged at an opposite lateral extreme of said vend space to collect electromagnetic radiation reaching said at least one collector in said plane, substantially completely depthwise of said vend space, and for redirecting such collected electromagnetic radiation to said at least one electromagnetic radiation detector.

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38/80

39/8

cll cond (New) The optical vend-sensing system according to claim 5⁸, wherein said sensing system further comprises two reflecting surfaces, each mounted at opposed lateral extremes of said vend space and wherein said beam is reflected off of each reflector at least once.

See the attached Appendix for the changes made to effect the claims.